Cariboo-Chilcotin
Land Use Plan

Regional Biodiversity Conservation Strategy

UPDATE NOTE #3

Definition of the Fir Group and Pine Group for Purposes of Seral Stage Assessments within NDT 4 of the Cariboo-Chilcotin

Prepared by:
Biodiversity Conservation Strategy Committee

Prepared for:

Cariboo Mid-Coast Interagency Management Committee

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Biodiversity Conservation Strategy Update Notes are prepared by the Cariboo-Chilcotin Biodiversity Conservation Strategy Committee for purposes of technical clarification or technical additions to the Biodiversity Conservation Strategy report, submitted to the Cariboo-Mid Coast Interagency Management Committee in July 1996. These notes are prepared in response to issues and questions presented to the Biodiversity Committee or recognized by the members of the Committee.

If you have any questions or comments regarding the technical content of these notes, please contact a member of the Biodiversity Conservation Strategy Committee:

Robin Hoffos (Chairman), Min. Environment, Lands, and Parks – (250) 398-4559
Harold Armleder, MoF, Cariboo Forest Region – (250) 398-4407
Rick Dawson, MoF, Cariboo Forest Region – (250) 398-4404
Ordell Steen, MoF, Cariboo Forest Region – (250) 398-4409

Definition of the Fir Group and Pine Group for Purposes of Seral Stage Assessments within NDT 4 of the Cariboo-Chilcotin

Introduction

Forest landscapes within NDT 4 in the Cariboo-Chilcotin have been subdivided into two ecological groups, the Fir Group and the Pine Group, for purposes of seral stage assessments. Assessments of landscape seral condition are conducted separately for each of these groups prior to completing a combined landscape seral stage assessment for the entire NDT-BEC unit (Biodiversity Conservation Strategy Committee 1996)[1]. The two groups are distinguished based on differences in natural disturbance regimes and tree species composition of late seral or climax forests. The Fir Group includes forests where natural disturbances are characterized by stand maintaining events and late seral or climax forests are dominated by Douglas-fir or ponderosa pine. The Pine Group includes forests where natural disturbances are predominantly stand replacing events and the late seral or climax forests are dominated by other species, primarily lodgepole pine or spruce. Based on these differences the Biodiversity Conservation Strategy Committee (1996)[1] applied different age criteria to seral stage definitions and different minimum seral stage percentage targets to the two groups. The purpose of this note is to provide a precise and updated definition of the two groups and thus background to the current seral stage assessments completed for the Cariboo-Chilcotin.

Conceptual Definition of Fir and Pine Groups

The Fir Group and the Pine Group are distinguished by their natural disturbance regimes and the tree species composition of their climax or long-persisting seral stages. They are not necessarily distinguished at all seral stages by current tree species composition.

Natural disturbance regimes consistent with descriptions of NDT 4 in the Forest Practices Code Biodiversity Guidebook have shaped large areas of the NDT 4 landscape within the Cariboo-Chilcotin. These areas have developed under frequent stand-maintaining disturbances and infrequent stand initiating disturbances. They include forests that contain a major component of Douglas-fir or ponderosa pine or are developing, through natural succession, into stands with a major component of these species within the time between stand initiating disturbances. These forests are included in the Fir Group.

Also within the NDT 4 landscape, however, are ecosystems that have developed under a natural disturbance regime of moderately frequent stand-initiating disturbances. The predominance of stand-initiating disturbances has continued as a result of the persistent dominance of tree species susceptible to stand initiating disturbances. These tree species, primarily lodgepole pine and spruce, persist as dominants with little or no Douglas-fir or ponderosa pine for a sufficiently long time that moderately frequent stand initiating disturbances are the predominant characteristic of the natural disturbance regime. These forests are included in the Pine Group. Stand initiating disturbances

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[1] Cariboo-Chilcotin Biodiversity Conservation Strategy Committee. 1996. Biodiversity Conservation Strategy for the Cariboo-Chilcotin Land Use Plan. Report submitted to the Cariboo-Mid Coast Interagency Management Committee. Williams Lake, B.C. 183 pp.

were apparently more frequent in these forests than in forests dominated by Douglas-fir or ponderosa pine. Older (>140 years) forests in this group are lodgepole pine or spruce climax stands or are long persisting lodgepole pine dominated seral stands.

Working Definition of Fir and Pine Groups

The working definition of the Fir and Pine groups uses attributes in the forest inventory data base to approximate the conceptual definition of the two groups.

The Fir Group includes all forest polygons in NDT 4 (IDF and BG biogeoclimatic zones) that are

- Douglas-fir or ponderosa pine leading;
- lodgepole pine leading with a major component of Douglas-fir or ponderosa pine in the principal or secondary canopy layers, or
- trembling aspen leading with a major component of Douglas-fir or ponderosa pine and no species characteristic of wet sites such as spruce or cottonwood in principal or secondary canopy layers.

The Pine Group includes all forest polygons in NDT 4 (IDF and BG biogeoclimatic zones) that are

- lodgepole pine leading and do not have a major component of Douglas-fir or ponderosa pine in principal or secondary canopy layers;
- spruce, red-cedar, cottonwood, or white birch leading;
- trembling aspen leading and do not have a major component of Douglas-fir or ponderosa pine or a minor or greater component of spruce, red-cedar, cottonwood, or birch in principal or secondary canopy layers.

More specific criteria using information in the forest inventory database (FIP files) are contained in Appendix 1.

Changes to the 1996 Working Definition

The current working definitions of the Fir and Pine Groups have changed slightly from those used by the Biodiversity Conservation Strategy Committee in 1996 to conduct the regional assessment of seral condition.

1. The current definition places all ponderosa pine leading stands and most stands with a major ponderosa pine component in the Fir Group. In the 1996 analysis, all ponderosa pine stands were placed by default in the Pine Group. The current change was made in order to be consistent with the concept of the Fir Group as described in 1996 and to recognize that frequent stand maintaining disturbances likely dominated the disturbance regimes of these forests. Ponderosa pine stands are uncommon in the Cariboo-Chilcotin, occurring only in the IDFxw biogeoclimatic subzone in the southern 100 Mile House Forest District.
2. The current definition places some trembling aspen leading stands within the Fir Group, that is, those with a major component of Douglas-fir or ponderosa pine and no spruce, cottonwood, white birch, or red-cedar. In the 1996 analysis, all trembling aspen leading stands were placed in the Pine Group even if Douglas-fir was a major species of the stand. The change was made to be

consistent with the concept of the Fir Group as it was described in 1996. Aspen stands with a major component of Douglas-fir or ponderosa pine are considered to be primarily seral stages leading to Douglas-fir or ponderosa pine forests and to have been affected by stand maintaining natural disturbances. However, trembling aspen leading stands on moist sites are typically seral stages leading to spruce or other non-Douglas fir leading climaxes and are maintained within the Pine Group. In the current definition, these stands are recognized as best as possible from forest inventory data, by a minor or greater component of spruce, cottonwood, birch, or red-cedar. Trembling aspen leading stands with no other major associated species, and thus insufficient information to estimate succession, are also retained within the Pine Group.

3. The current definition places some polygons with no leading species (NSR sites) in the Fir Group. These polygons are those for which the inventory type group code, which is generally retained in the forest inventory files (FIP files), indicates a pre-harvest Douglas-fir or ponderosa pine leading stand or a lodgepole pine stand with a major Douglas-fir component. In the 1996 assessment, all polygons with no leading species (NSR) were placed in the Pine Group by default. This change was made to recognize that if an NSR site supported a Douglas-fir leading stand prior to harvesting, it should continue to support a Douglas-fir leading stand or a stand with a major component of Douglas-fir subsequent to harvest. Many are currently Douglas-fir leading stands.

4. The current definition places lodgepole pine leading stands that are two- or multi-layered in the Fir Group if Douglas-fir or ponderosa pine is a major species in layer 2 (tree layer with second largest volume), even if they are not major species in layer 1 (layer with greatest volume). In the 1996 assessment, only the composition of layer 1 was considered. This change was made to make the working definition more consistent with the concept of the Fir Group and Pine Group as outlined in the 1996 report. The change was made primarily to include stands in the Fir Group which have an upper canopy dominated by lodgepole pine and a lower merchantable tree layer (not regeneration layer) dominated by Douglas-fir. A Douglas-fir dominated secondary canopy layer clearly indicates that Douglas-fir will relatively quickly dominate forests on the site.

Appendix 1

Fir and Pine Group Criteria for Purposes of Seral Stage Assessments within NDT 4 in the Cariboo-Chilcotin

Fir Group includes all forest polygons in NDT4 (IDF and BG biogeoclimatic zones) that satisfy at least one of the following five criteria:

1. **Douglas-fir leading** (rank 1 species 1 = Fd, all polygons)
2. **Ponderosa pine leading** (rank 1 species 1 = Py, all polygons)
3. **Lodgepole pine leading** (rank 1 species 1 = Pl) **and**

   Douglas-fir or ponderosa pine >15% in rank 1 or rank 2 (rank 1 species 2, 3, 4, 5, or 6 = (Fd or Py) >15% or rank 2 species 1, 2, 3, 4, 5, or 6 = (Fd or Py) > 15%)
4. **Trembling aspen leading** (rank 1 species 1 = At) **and**

   Douglas-fir or Ponderosa pine >15% in rank 1 or rank 2 (rank 1 species 2, 3, 4, 5, or 6 = (Fd or Py) > 15% or rank 2 species 1, 2, 3, 4, 5, or 6 = (Fd or Py) > 15%)

   and

   Spruce, red-cedar, cottonwood, and birch < 6% in rank 1 and rank 2 (rank 1 species 2, 3, 4, 5, and 6 ≠ (S, Cw, Ac, or Ep ≥ 6%) and rank 2 species 1, 2, 3, 4, 5, and 6 ≠ (S, Cw, Ac, or Ep ≥ 6%))
5. **No leading species** (NSR; rank 1 species 1-6 = null and rank 2 species 1-6 = null) **and**
   Inventory type group = 1, 2, 3, 4, 5, 6, 7, 8, 29, or 32 (F, FC, FCy, FH, FS, FPl, FPy, FL, FDecid., PlF, or Py)

Pine Group includes all other forest polygons in NDT4 (IDF and BG biogeoclimatic zones):

1. **Lodgepole pine leading** (rank 1 species 1 = Pl) **and**

   Douglas-fir and ponderosa pine ≤ 15% in rank 1 and rank 2
2. **Trembling aspen leading** (rank 1 species 1 = At) **and**

   2a. Douglas-fir and Ponderosa pine ≤ 15% in rank 1 and rank 2 (rank 1 species 2, 3, 4, 5, 6 ≠ (Fd or Py) > 15% or rank 2 species 1, 2, 3, 4, 5, 6 ≠ (Fd or Py) > 15%)

   or

   2b. Spruce, red-cedar, cottonwood, or birch ≥ 6% in rank 1 or rank 2 (rank 1 species 2, 3, 4, 5, 6 = (S, Cw, Ac, or Ep ≥ 6%) or rank 2 species 1, 2, 3, 4, 5, or 6 = (S, Cw, Ac, or Ep ≥ 6%)).
3. **Spruce leading** (rank 1 species 1 = S, all polygons)
4. **Red-cedar leading** (rank 1 species 1 = Cw, all polygons)
5. **Cottonwood leading** (rank 1 species 1 = Ac, all polygons)
6. **Birch leading** (rank 1 species 1 = Ep, all polygons)
7. **No leading species** (NSR; rank 1 species 1-6 = null and rank 2 species 1-6 = null) **and**
   Inventory type group ≠ 1, 2, 3, 4, 5, 6, 7, 8, 29, or 32; includes inventory type group = null.